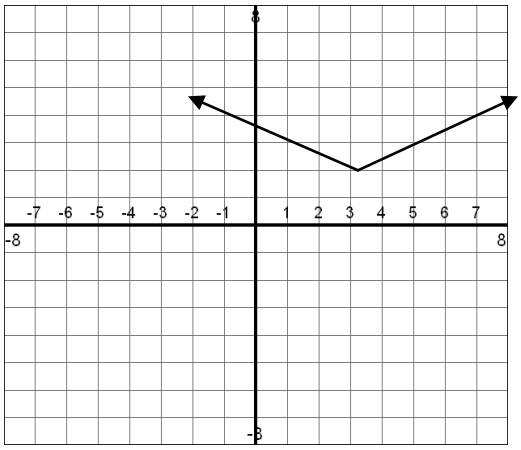
Algebra 2

Name_____

Midterm Review

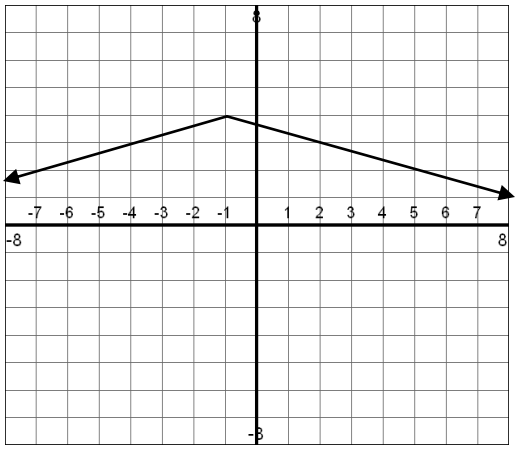
Date_____ Per_____

1.) Determine the equation of the graph below:



y = _____

1.) YOU TRY: Determine the equation of the graph below:



y = _____

2.) Hertz Rent-A-Car charges a daily fee of $45 dollars a day and .30 cents for every mile. The local competition charges $35 a day and .50 cents for every mile. If you rent a car for 3 days and drive 300 miles, which company offers a better value?

Answer: _____

2.) YOU TRY: Hertz Rent-A-Car charges a daily fee of $55 and .20 cents for every mile. The local competition charges $25 a day and .59 cents for every mile. If you rent a car for 4 days and drive 250 miles, which is the better value?

Answer: _____

3.) Determine the zeros/roots/solutions of the following function:

$y = 2x^2 + 6x + 3$

Zeros: _____

3.) YOU TRY: Determine the zeros/roots/solutions of the following function:

$2x^2 + 39 = -18x$

Zeros: _____

4.) Which of the following choices represents the following transformation

$y = |x| \quad to \quad y = |x + 5| - 3$

a. Horizontal shift 5 units right, vertical shift 3 units down
b. Horizontal shift 5 units right, vertical shift 3 units up
c. Horizontal shift 5 units left, vertical shift 3 units down
d. Horizontal shift 5 units left, vertical shift 3 units up

4.) YOU TRY: Which of the following choices represents the following transformation

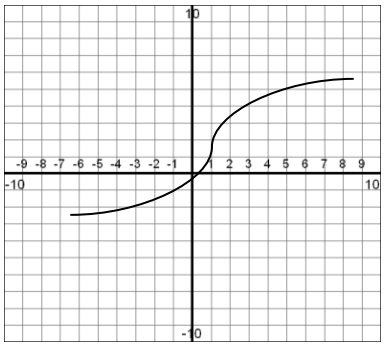
$y = x^2 \quad to \quad y = (x - 1)^2 + 7$

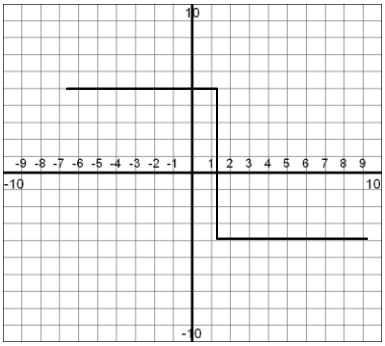
a. Horizontal shift 1 units right, vertical shift 7 units down
b. Horizontal shift 1 units right, vertical shift 7 units up
c. Horizontal shift 1 units left, vertical shift 7units down
d. Horizontal shift 1 units left, vertical shift 7 units up

5.) Which of the following relationships are functions?

a. $\{(4,6), (5,2), (-4,7), (3,6), (6,3)\}$

b. $\{(3,-6), (5,2), (-4,7), (3,6), (2,5)\}$

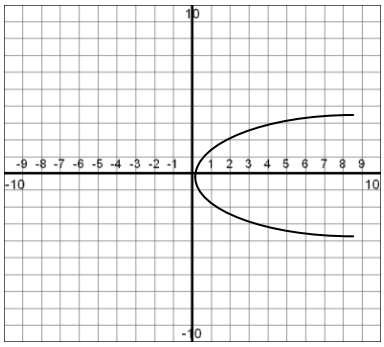
c. 

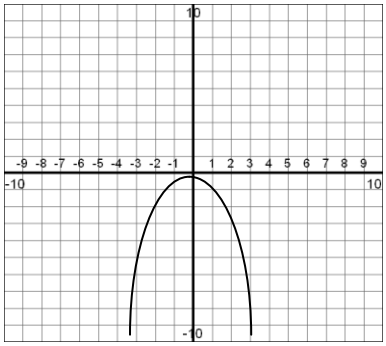
d. 

5.) YOU TRY: Which of the following relationships are functions?

a. {(1, 2), (3, 4), (-1, -2), (-3, -4)}

b. {(1,2), (-1, 2), (1, 3), (-1, 3)}

c. 

d. 

6.) Determine the value of b if the solution to the equations is x = -13

$$\frac{x^2 + bx + 6}{-2x + 7} = 12$$

b = _____

6.) YOU TRY: Determine the value of b if the solution to the equations is x = - 4

$$\frac{x^2 + bx - 2}{3x - 5} = -2$$

b = _____

7.) Given f(x) = $x^2 + 4x + 1$, which of the following is equivalent?

a. f(x) = $(x + 2)^2$+3

b. f(x) = $(x + 2)^2$-3

c. f(x) = $(x - 2)^2$+3

d. f(x) = $(x - 2)^2$-3

7.) YOU TRY: Given f(x) = $x^2 + 6x + 3$, which of the following is equivalent?

a. f(x) = $(x + 3)^2$ + 6

b. f(x) = $(x - 3)^2 - 6$

c. f(x) = $(x - 3)^2$ + 6

d. f(x) = $(x + 3)^2 - 6$

8.) What are the zero's of the following polynomial function f(x) = $x^4 - x^2 - 9x^2 + 9$

Zeros: _____

8.) YOU TRY: What are the zero's of the following polynomial function f(x) = $x^4 - 25x^2 - 4x^2 + 100$

Zeros: _____

9.) When is the function $x^2 - 3x - 18$ decreasing?

Decreasing: _____

9.) YOU TRY: When is the function $-x^2 + 9x - 20$ increasing?

Decreasing: _____

10.) Determine the value of x which would make the statement true.

$$2i^3(5 + i) + 3i = 2 + xi$$

a. x = 11
b. x = - 7
c. x = - 2
d. x = 3

10.) YOU TRY: Determine the value of x which would make the statement true.

$$-3i^3(3 + 2i) - 2i = -6 + xi$$

a. x = 7
b. x = - 7
c. x = 1
d. x = -1

11.) Which of the following is equivalent to

$x^2 + 18x + 100 = 20$

a. $(x + 9)^2 = 1$

b. $(x + 9)^2 = -1$

c. $(x - 9)^2 = 1$

d. $(x - 9)^2 = -1$

11.) YOU TRY: Which of the following is equivalent to

$x^2 + 2x + 9 = 24$

a. $(x - 1)^2 = 16$

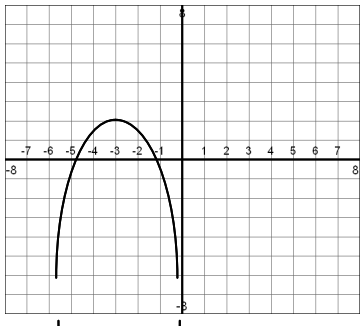
b. $(x - 1)^2 = -16$

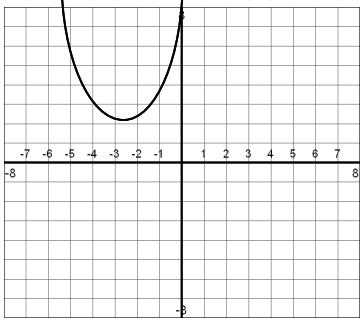
c. $(x + 1)^2 = 16$

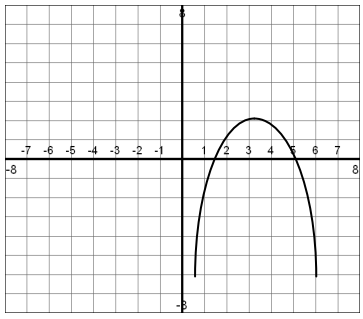
d. $(x + 1)^2 = -16$

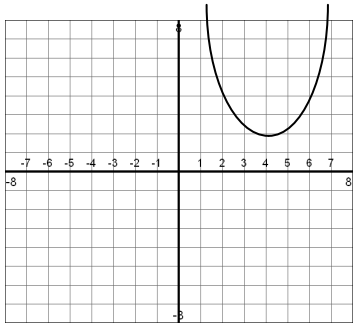
12.) Which of the following is the graph of

f(x) = $-(x - 3)^2 + 2$

a. 

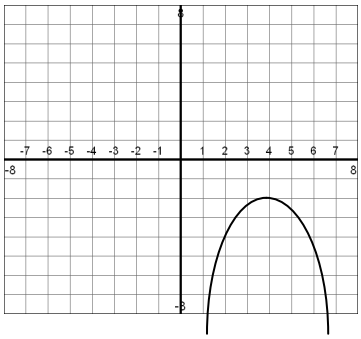
b. 

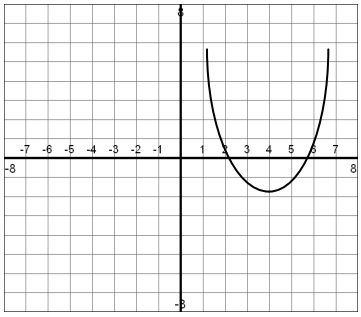
c. 

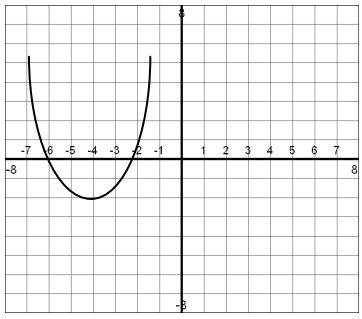
d. 

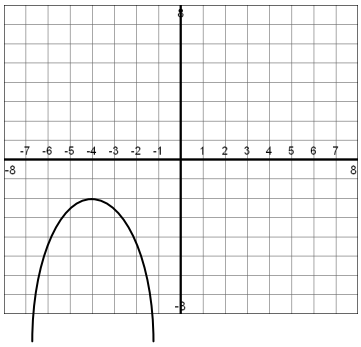
12.) YOU TRY: Which of the following is the graph of

f(x) = $(x + 4)^2 - 2$

a. 

b. 

c. 

d. 

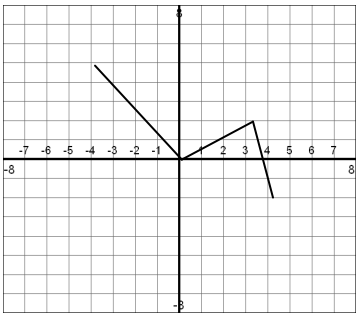
12.) A rectangular box has sides of lengths 6, 8 and 10. If each side is increase by x inches, determine the volume function that would model this rectangular box.

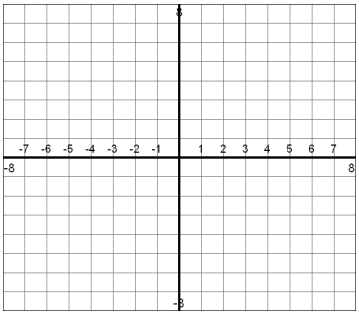
Volume: _____

12.) YOU TRY: A rectangular box has sides of lengths of 2, 3, 4. If each side is decreased by x inches, determine the volume function that would model this rectangular box.

Volume: _____

13.) The following graph is f(x), graph f(x + 2) – 3





13.) The following graph is f(x), graph f(x -3) + 1